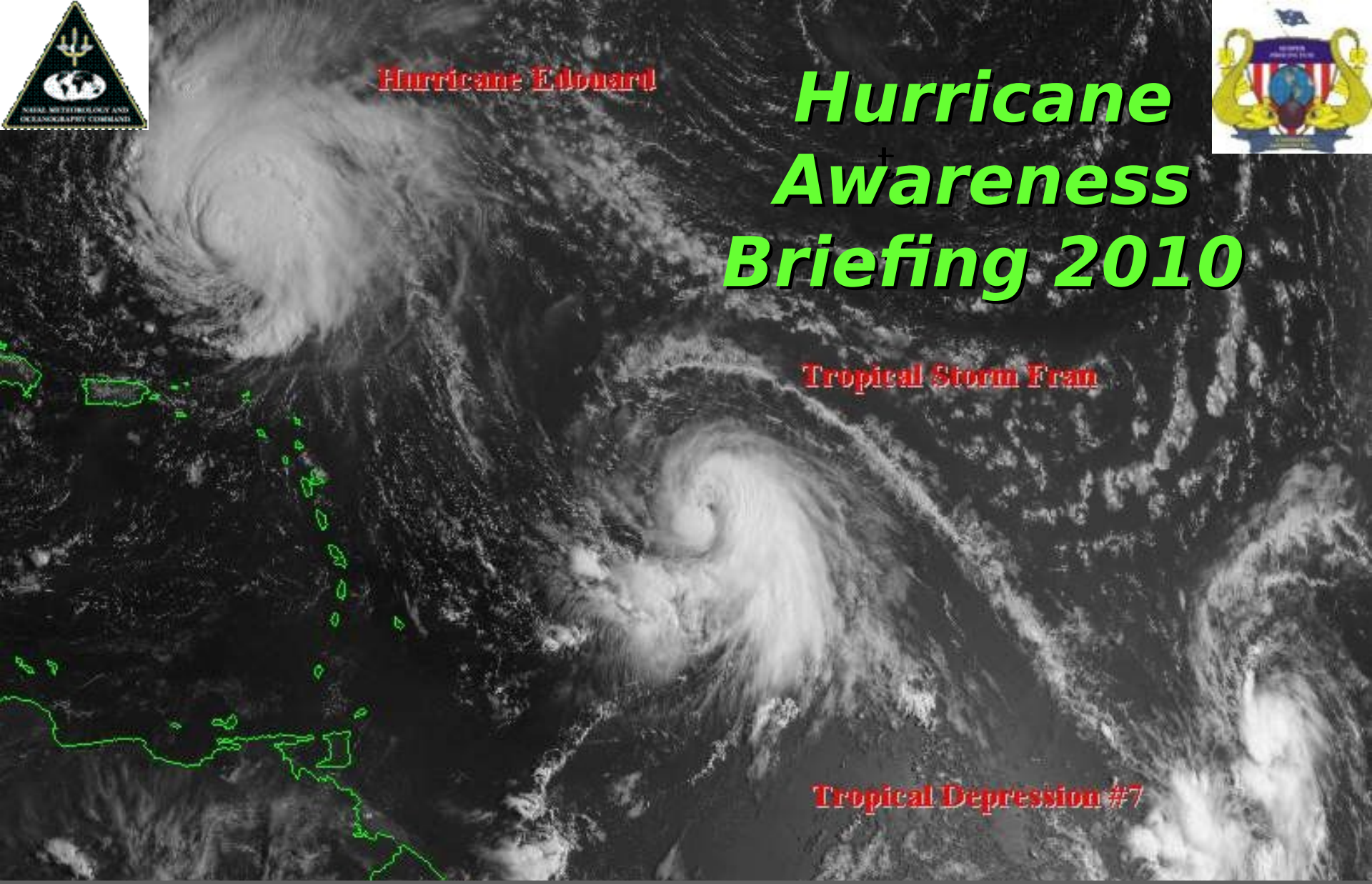

Hurricane Awareness Briefing 2010

LCDR Marn Balolong

COMSUBLANT Oceanographer

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Tropical Cyclone *Quick Reference Guide* 201

U.S. Navy Atlantic Tropical Web Site: http://www.usno.navy.mil/N...e-n

Maritime Operations Watch Floor: 757 - 444 - 7750

DSN 564 -7750 **email:** maritime.cdo@navy.mil

Naval Maritime Forecast Center - Norfolk, 9141 Third Ave, Norfolk VA 23511-2394

cdo.nmfa_n.001.fct@navy.smil.mil

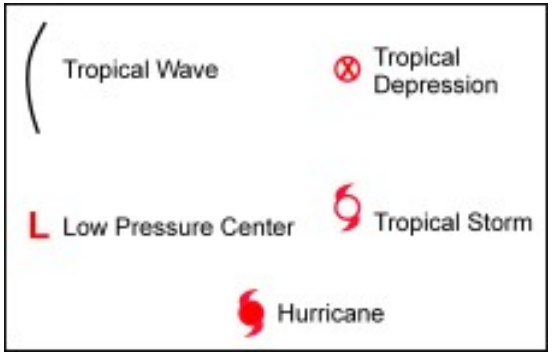
Atlantic **Tropical Cyclone Season: 01 June - 30 November**

East Pacific **Tropical Cyclone Season: 15 May - 30 November**

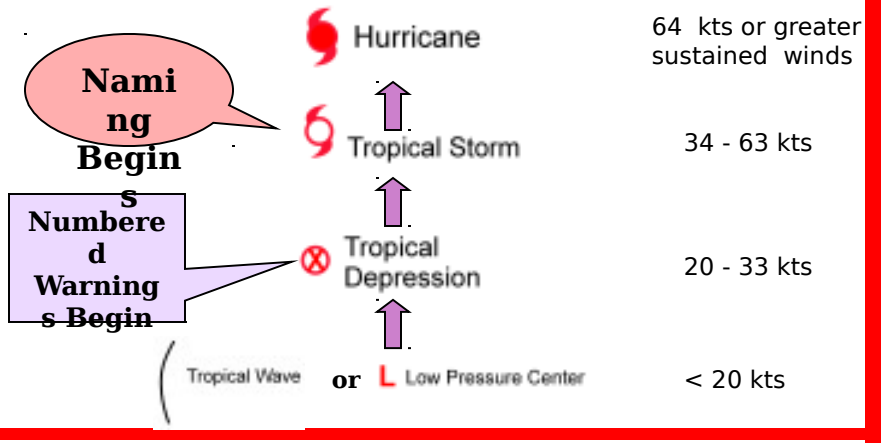
2010 Atlantic Tropical Cyclone Names

Alex	Lisa
Bonnie	Matthew
Colin	Nicole
Danielle	Otto
Earl	Paula
Fiona	Richard
Gaston	Shary
Hermine	Tomas
Igor	Virginie
Julia	Walter
Karl	

Tropical Cyclone Symbols



Stages of Tropical Cyclone Development

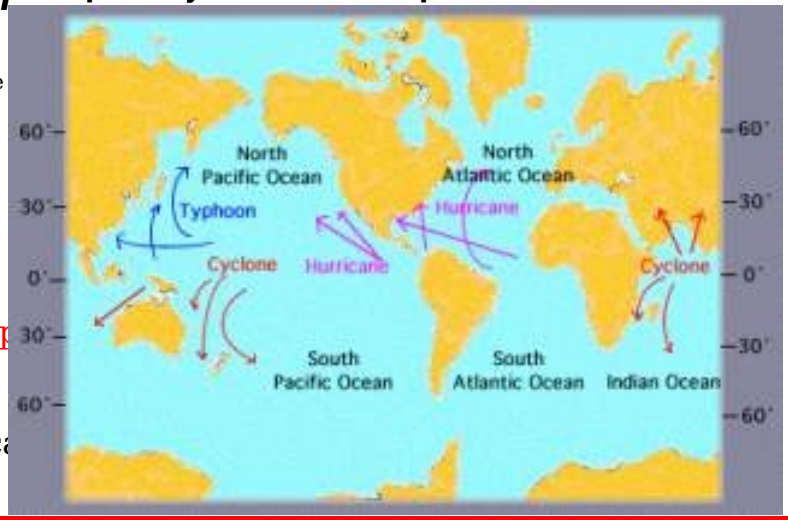


Saffir-Simpson Scale - *Hurricane Destruction Potential*

Category	Sustained Wind Speed (knots)	Sustained Wind Speed (mph)	Storm Surge (ft)	Damage
1	64 - 82	74 - 95	4 - 5	Minimal
2	83 - 95	96 - 110	6 - 8	Moderate
3	96 - 113	111 - 130	9 - 12	Extensive
4	114 - 135	131 - 155	13 - 18	Extreme
5	> 135	> 155	> 18	Catastrop

NOTE: Category 3, 4, & 5 are considered **MAJOR** hurrica

Tropical Cyclones: Development Areas and Movement



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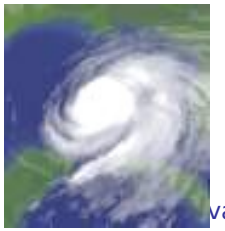


Tropical Cyclone *Quick Reference Gu*

Maritime Operations Watch Floor: 757 – 444 - 7750 DSN 564 - 7750
email: maritime.cdo@navy.mil
val Maritime Forecast Center - Norfolk, 9141 Third Ave, Norfolk VA 23511-2394
cdo.nmfa_n.001.fct@navy.smil.mil

opical Cyclone Conditions of Readiness (COR)

(time to onset of destructive winds)*

COR V	96 hours
COR IV	72 hours
COR III	48 hours
COR II	24 hours
COR I	12 hours

* Destructive winds are defined as sustained **50 kts or greater**

Sortie Conditions

Charlie - Prepare to sortie within **48** hours
Bravo - Expected sortie within **24** hours
Alpha - Commence sortie to sea

Aircraft Evacuation Status Reports

(required at the following times)

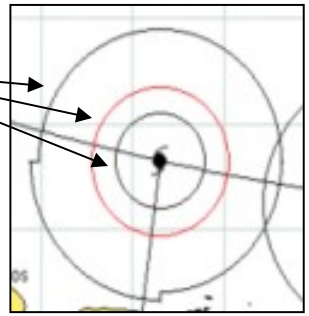
72 hours
48 hours
24 hours
12 hours

Environmental Requirements for Tropical Cyclone Development

- **Sea Surface Temperature > 26 C/ 78 F** with sufficient depth (approx 200ft) of warm water
- **Pre-existing disturbance** to trigger thunderstorm activity (frontal boundary, easterly wave, distal low pressure, etc…)
- **Divergence** at the Upper Levels (above the 400 mb level)
- Ample Planetary Vorticity (**Coriolis Force**) [disturbance located above 8 degrees North Latitude or below 8 degrees South Latitude]
- **Weak (< 20kts) vertical wind shear** between the surface and upper troposphere
- Relatively **moist layers at the**

KEY TO TROPICAL CYCLONE WARNING GRAPHICS

The black and **red** lines around a projected tropical cyclone track indicate the **34 knot, 50 knot, and 64 knot wind radii** associated with the storm at a given point. The outermost black line indicates the 34 knot radius, the red line indicates the 50 knot radius, and the inner black line shows the 64 knot radius. Since not all cyclones have the highest winds associated with them, weaker storms will not have a 64-knot radius (and possibly no 50-knot radius also.) The actual number of miles for the radius in each



NFAAS | NAVY FAMILY ACCOUNTABILITY and ASSESSMENT SYSTEM

NFAAS standardizes a method for the Navy to account, assess, manage, and monitor the recovery process for personnel and their families affected and/or scattered by a wide-spread catastrophic event. The NFAAS provides valuable information to all levels of the Navy chain of command, allowing commanders to make strategic decisions which facilitate a return to stability.

NFAAS allows Navy Personnel to do the following:

- Update Contact/Location information
- Complete Needs Assessment
- View Reference Information

NFAAS Website --- https://www.navyfamily.na

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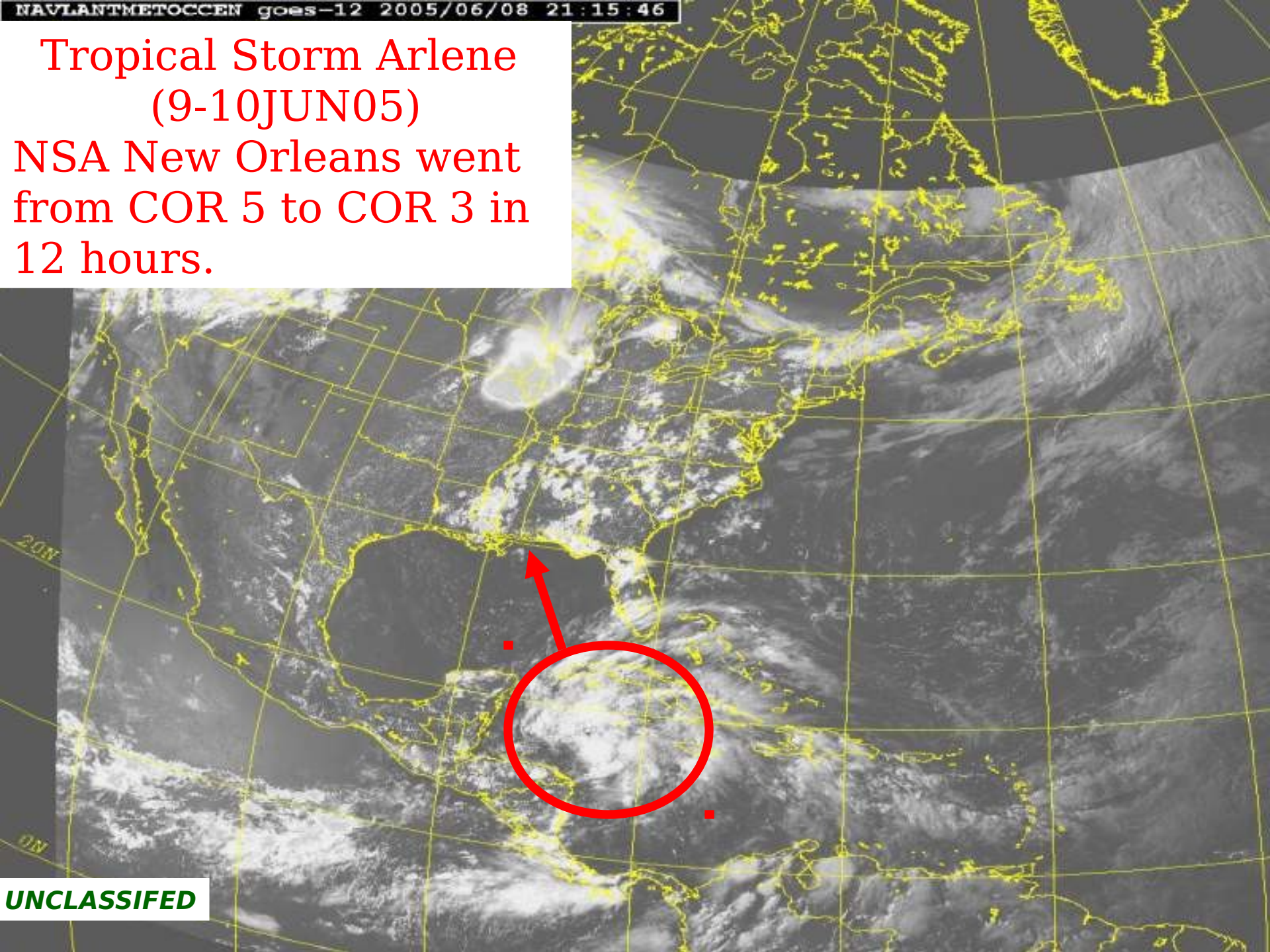
NAVLANTMETOCCEN goes-12 2005/06/08 21:15:46
Tropical Storm Arlene
(9-10JUN05)
NSA New Orleans went
from COR 5 to COR 3 in
12 hours.
20N
0N
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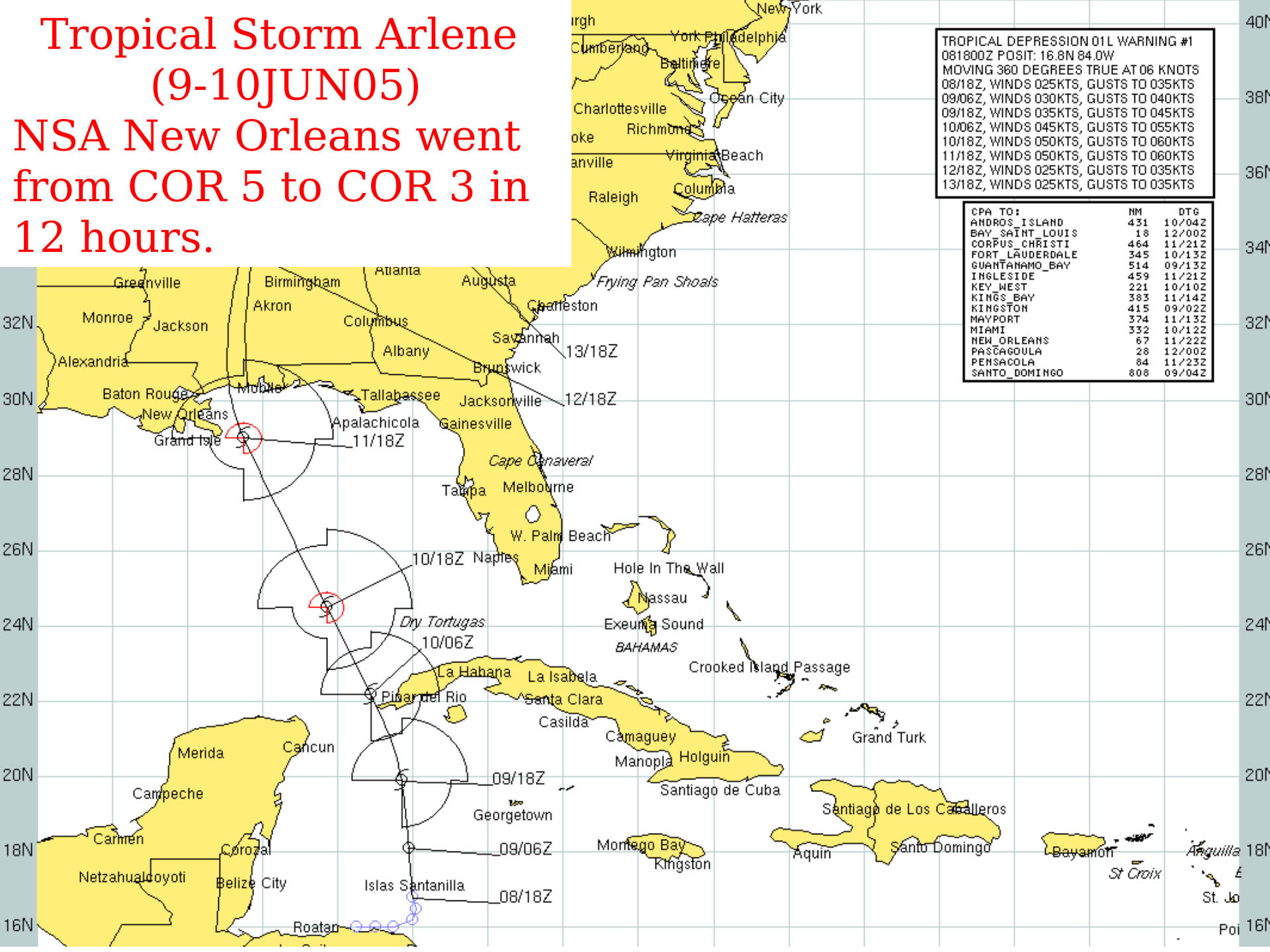
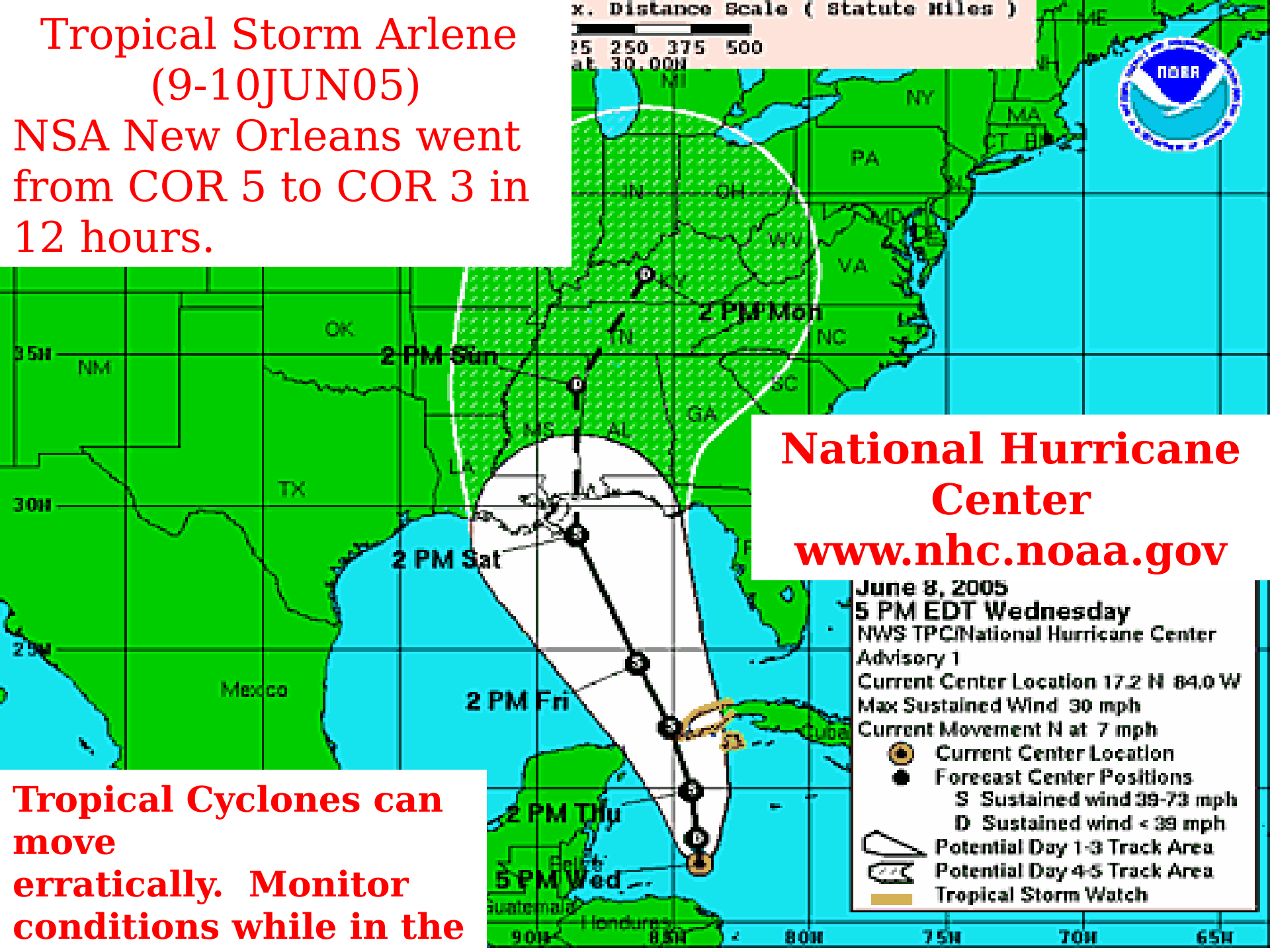
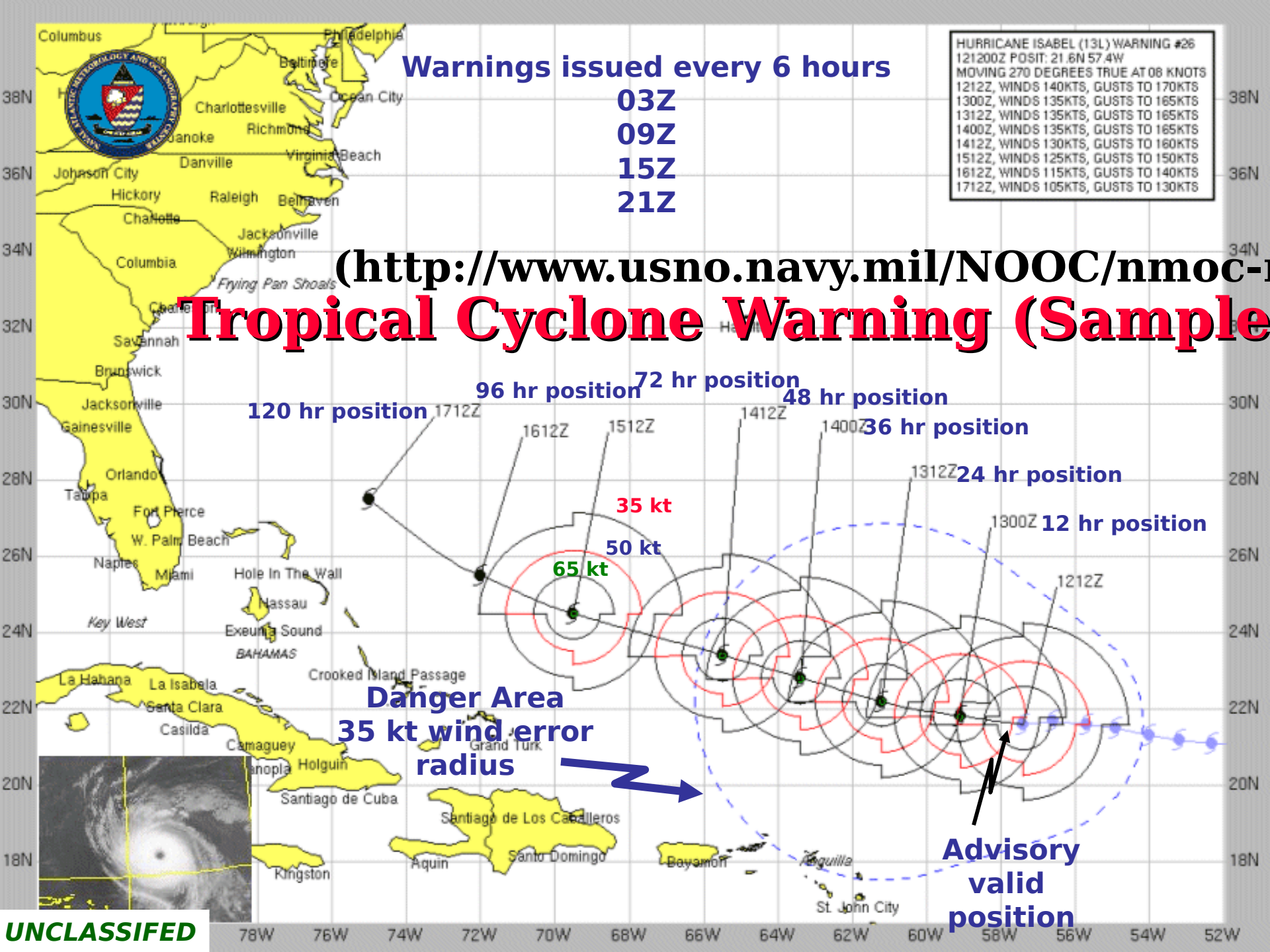
Tropical Storm Arlene (9-10JUN05)

NSA New Orleans went from COR 5 to COR 3 in 12 hours.




Tropical Storm Arlene
(9-10JUN05)
NSA New Orleans went from COR 5 to COR 3 in 12 hours.
National Hurricane Center
www.nhc.noaa.gov
Tropical Cyclones can move erratically. Monitor conditions while in the
2 PM Sun
2 PM Mon
2 PM Sat
2 PM Fri
2 PM Thu
5 PM Wed
June 8, 2005
5 PM EDT Wednesday
NWS TPC/National Hurricane Center
Advisory 1
Current Center Location 17.2 N 84.0 W
Max Sustained Wind 30 mph
Current Movement N at 7 mph
Current Center Location
Forecast Center Positions
S Sustained wind 39-73 mph
D Sustained wind < 39 mph
Potential Day 1-3 Track Area
Potential Day 4-5 Track Area
Tropical Storm Watch



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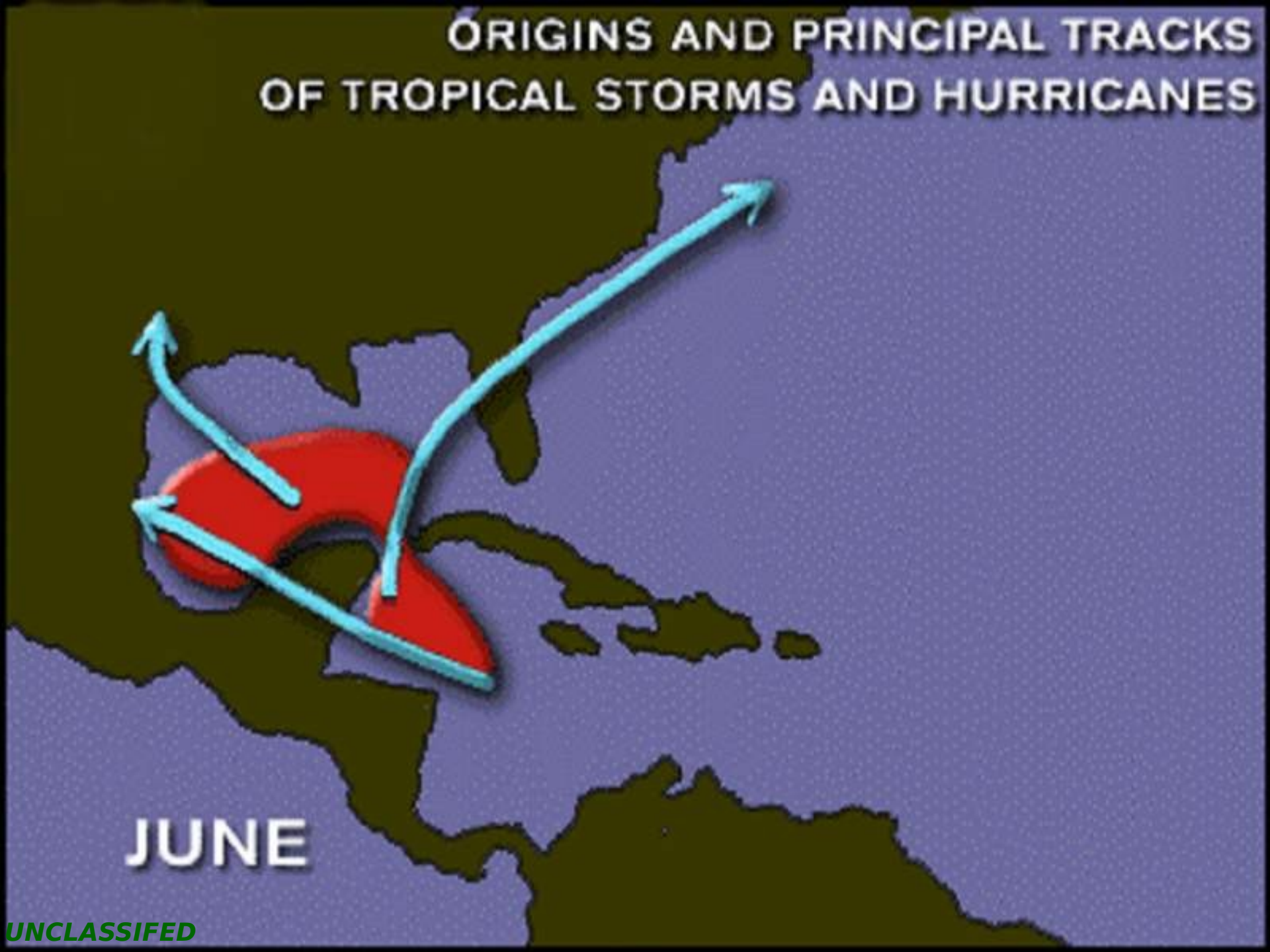

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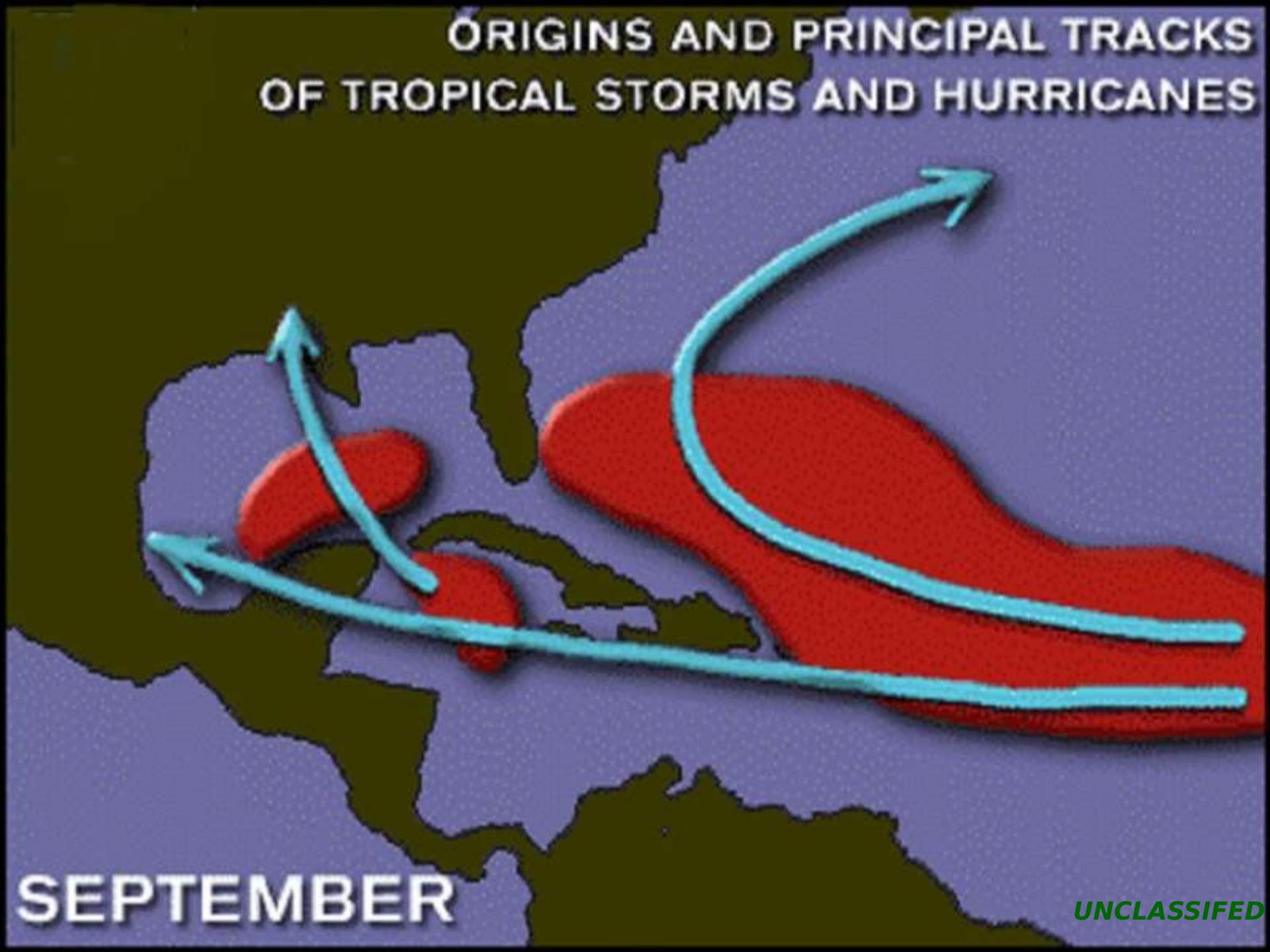
ORIGINS AND PRINCIPAL TRACKS
OF TROPICAL STORMS AND HURRICANES
SEPTEMBER
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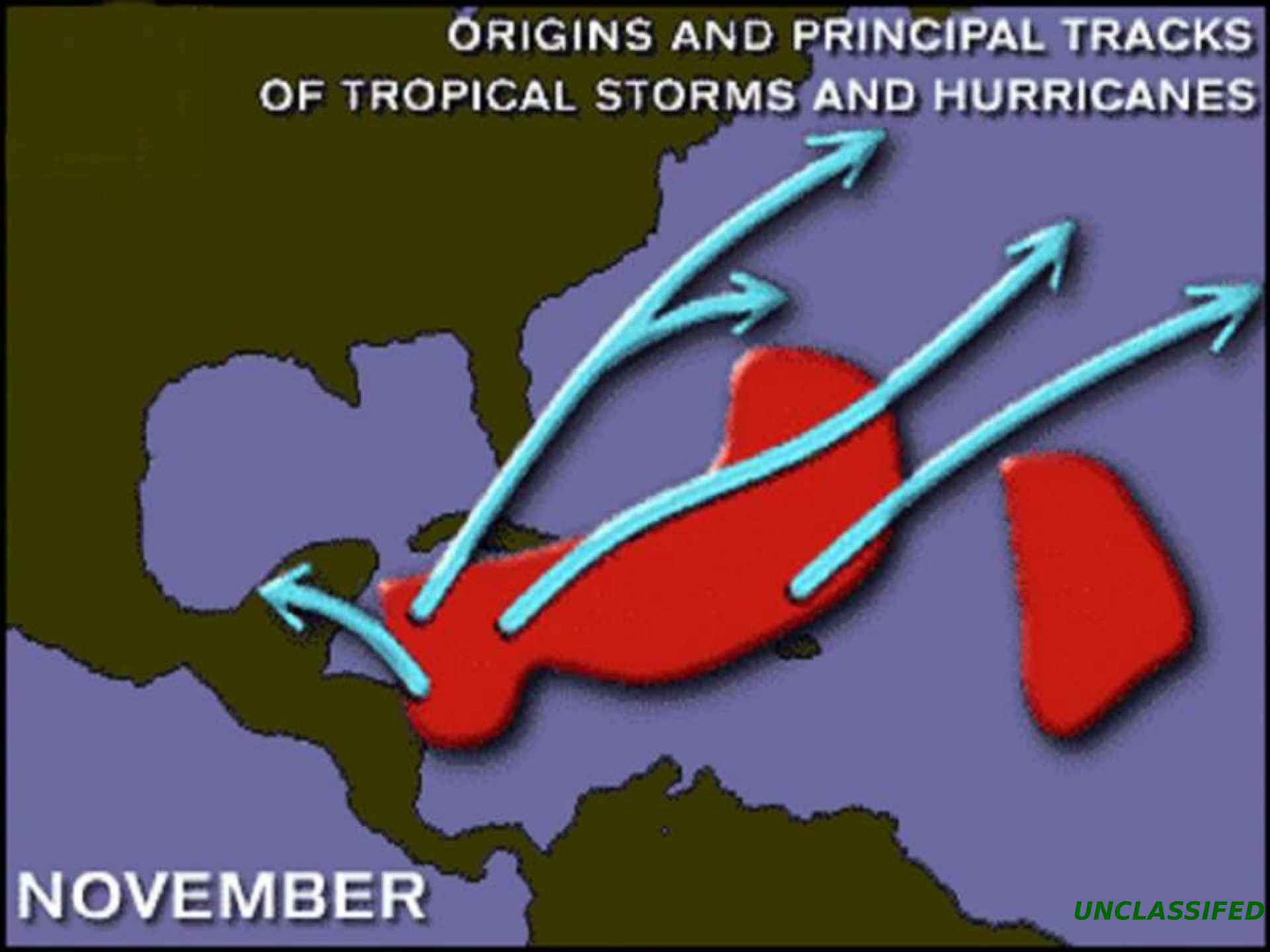
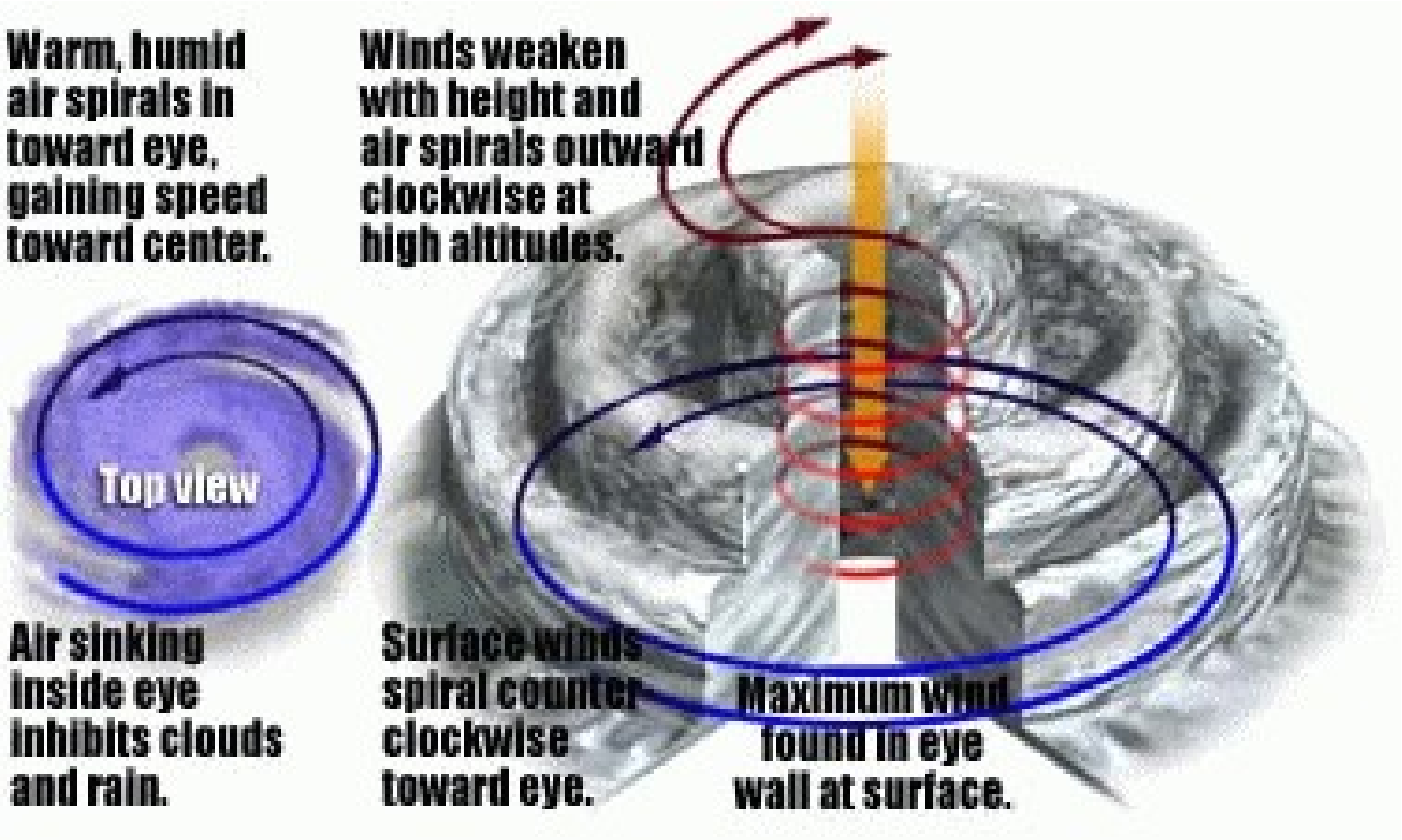

ORIGINS AND PRINCIPAL TRACKS
OF TROPICAL STORMS AND HURRICANES
NOVEMBER
UNCLASSIFED

Hurricane Structure


Warm, humid air spirals in toward eye, gaining speed toward center.
Winds weaken with height and air spirals outward clockwise at high altitudes.
Top view
Air sinking inside eye inhibits clouds and rain.
Surface winds spiral counter clockwise toward eye.
Maximum wind found in eye wall at surface.

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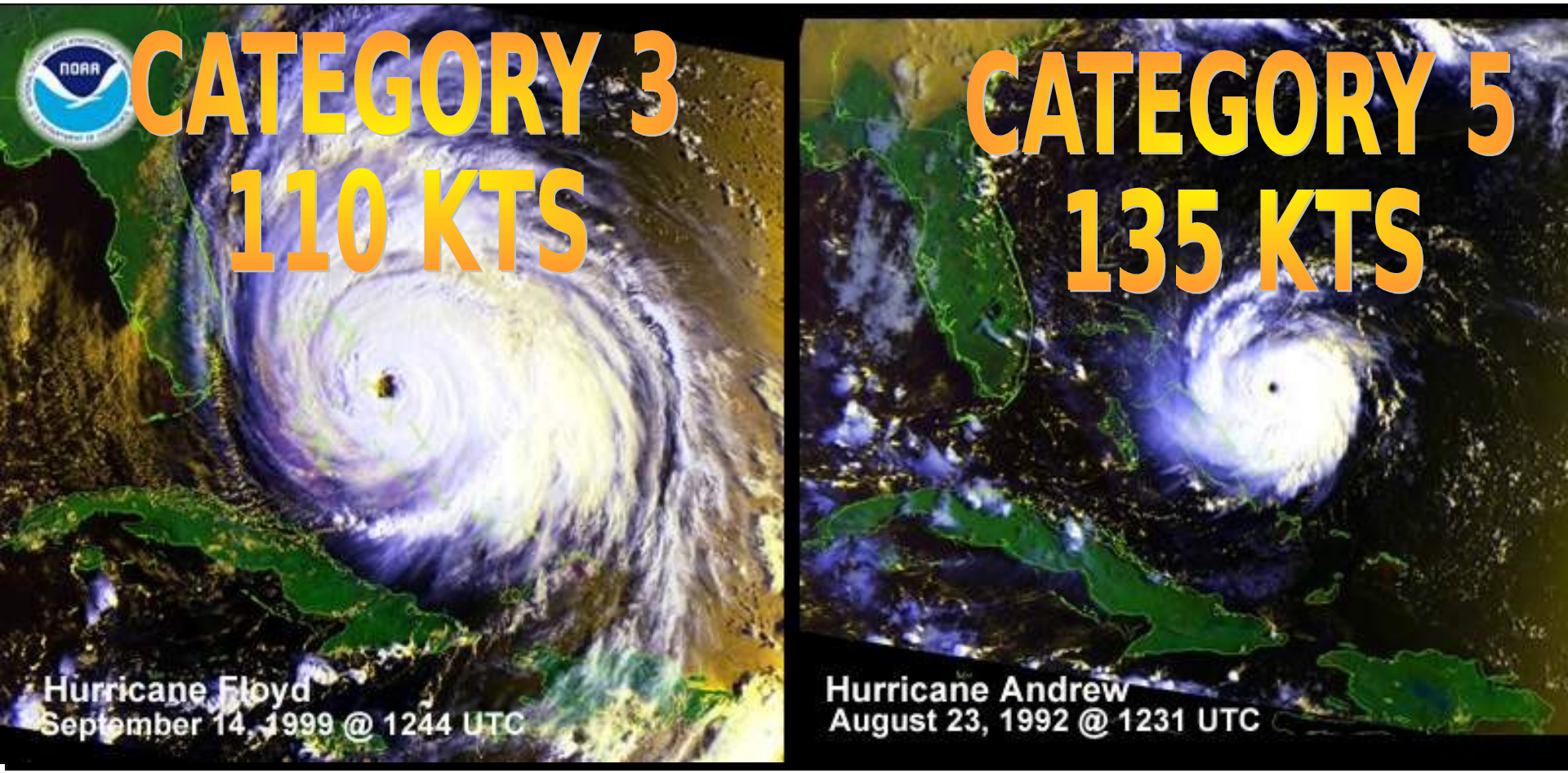
WHICH SYSTEM IS MORE INTENSE?



FLOYD VS. ANDREW

A SIZE COMPARISON

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Tropical Cyclone Weather Phenomena

- **TORNADOES & SEVERE**

Embedded in T-storms normally form with landfall of Tropical Cyclone

- **WINDS**

Flying debris/missile hazards
Total destruction of poor constructed structures

- **TORRENTIAL RAINS/FLOO**

Excess of 6 inches in less than 8 hrs p

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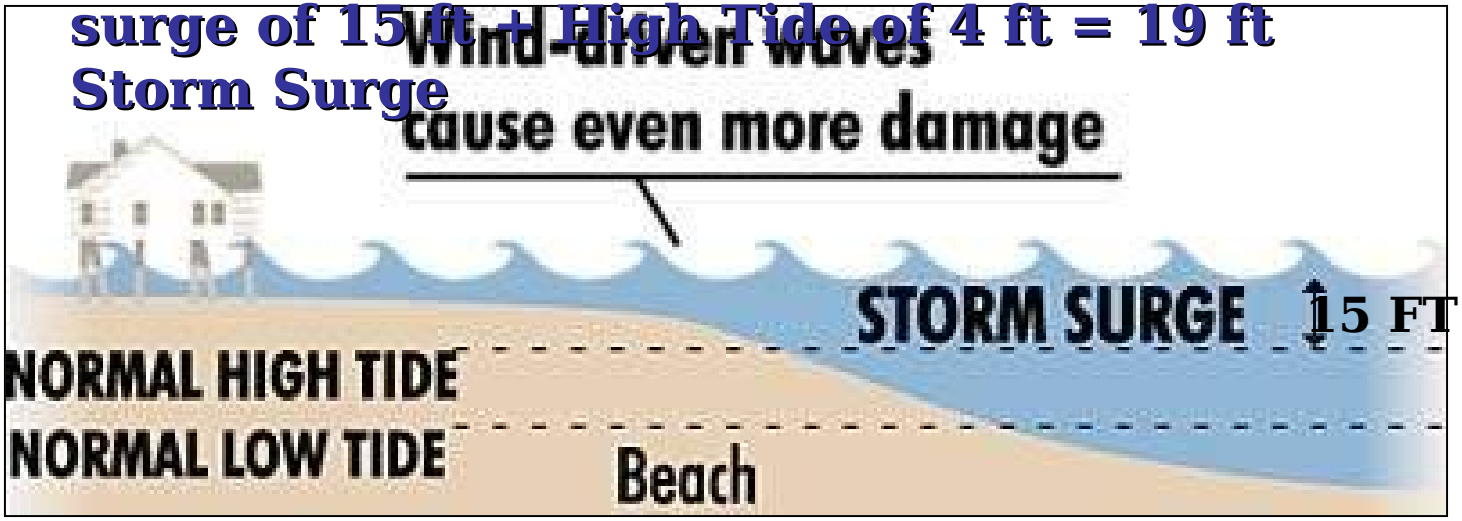
Storm Surge + Tidal Influence

Example: Category 4 Hurricane (114-135 kts/13 to 18 ft)
surge of 15 ft + High Tide of 4 ft = 19 ft Storm Surge



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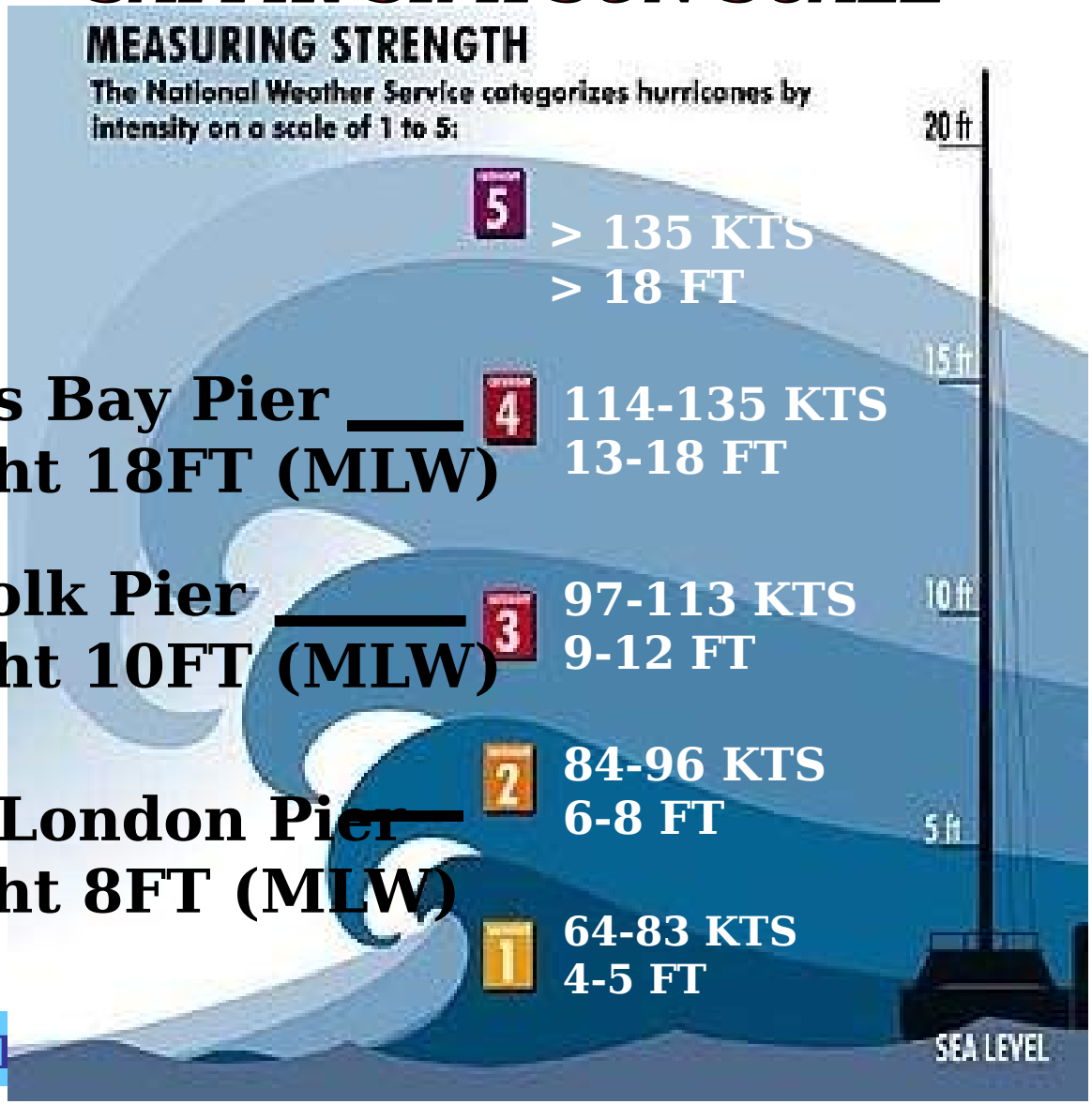
Storm Surge

SAFFIR-SIMPSON SCALE



Kings Bay Pier ____
Height 18FT (MLW)

Norfolk Pier _____
Height 10FT (MLW)

New London Pier___
Height 8FT (MLW)

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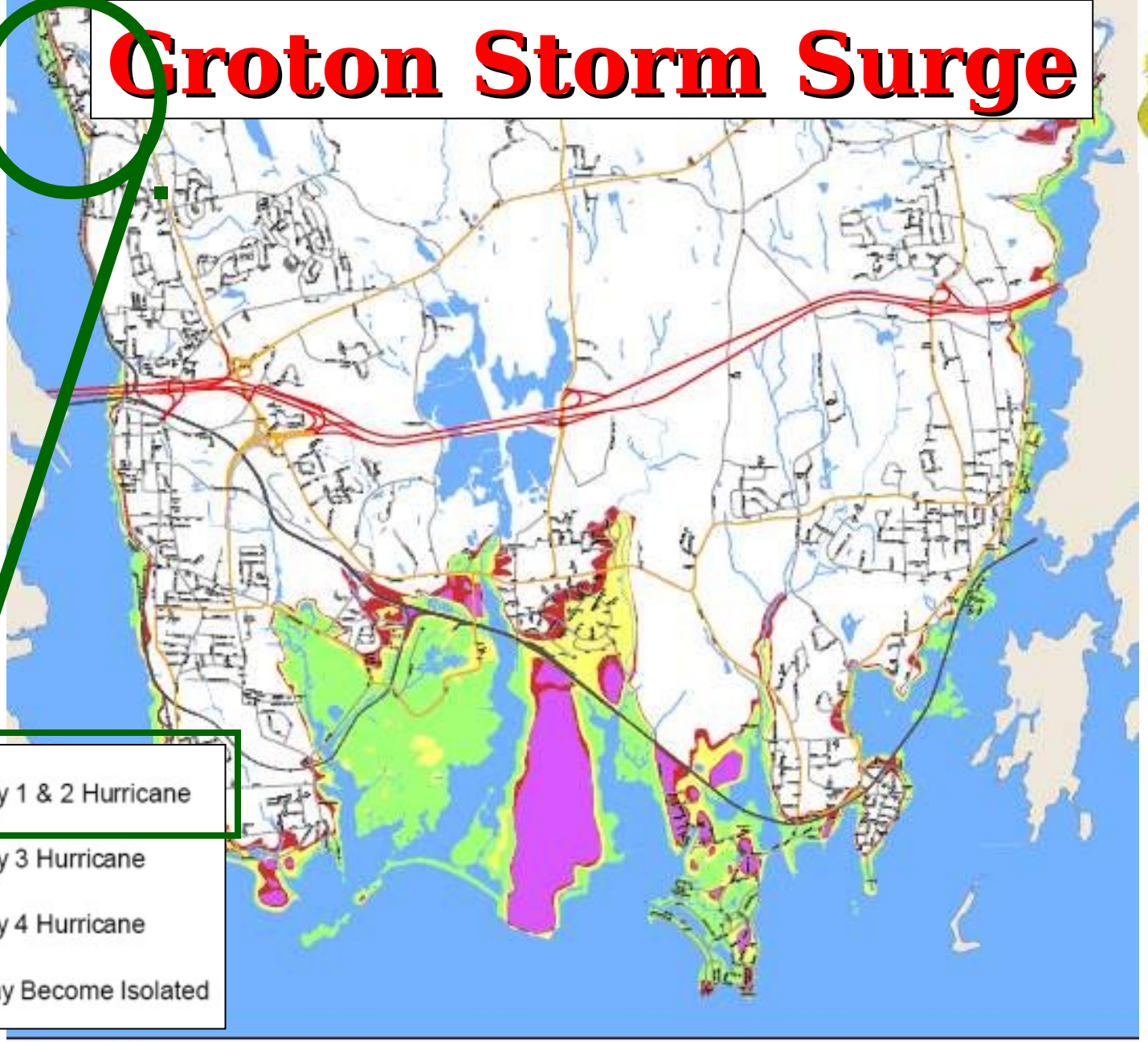
Groton Storm Surge



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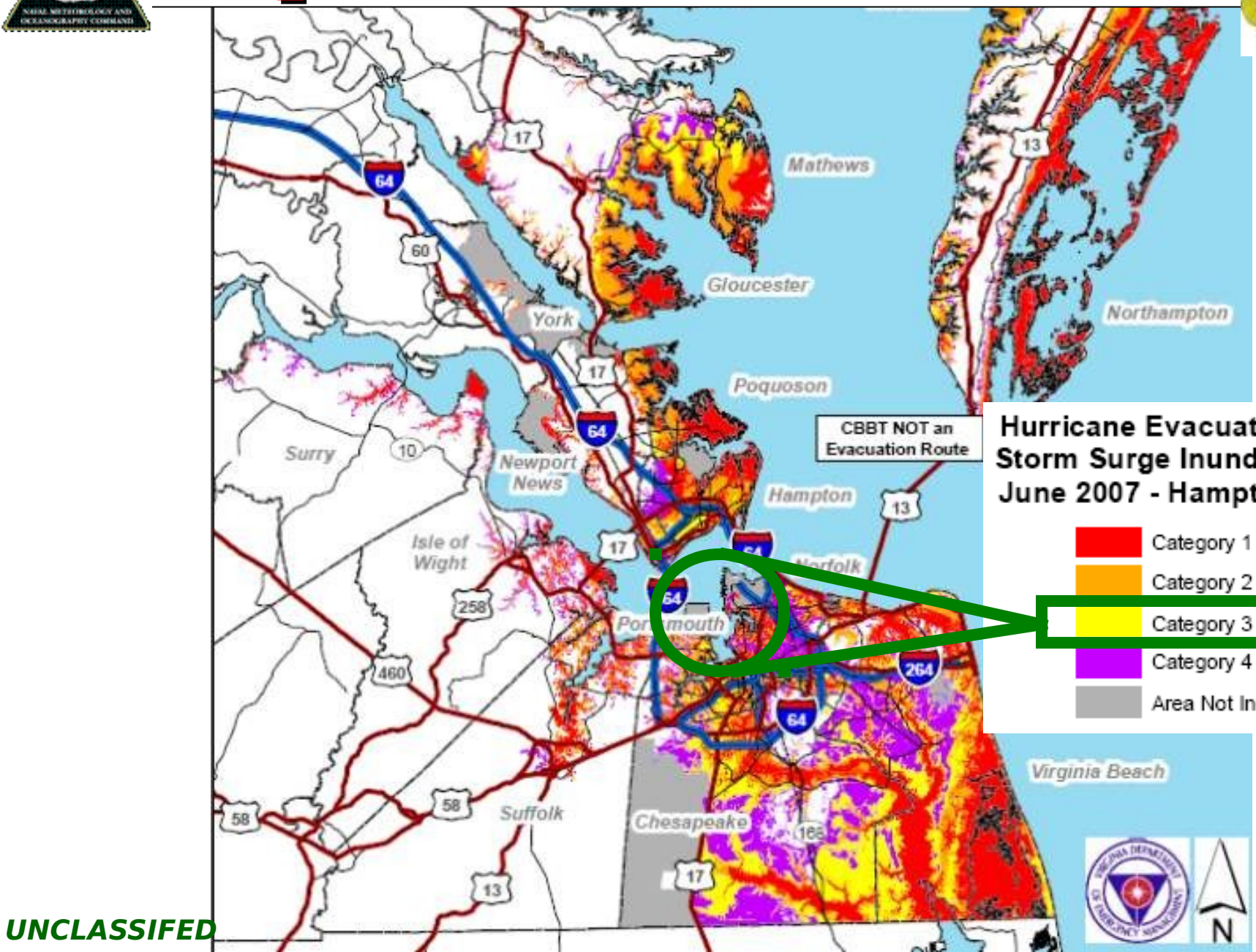
ampton Roads Storm Sur



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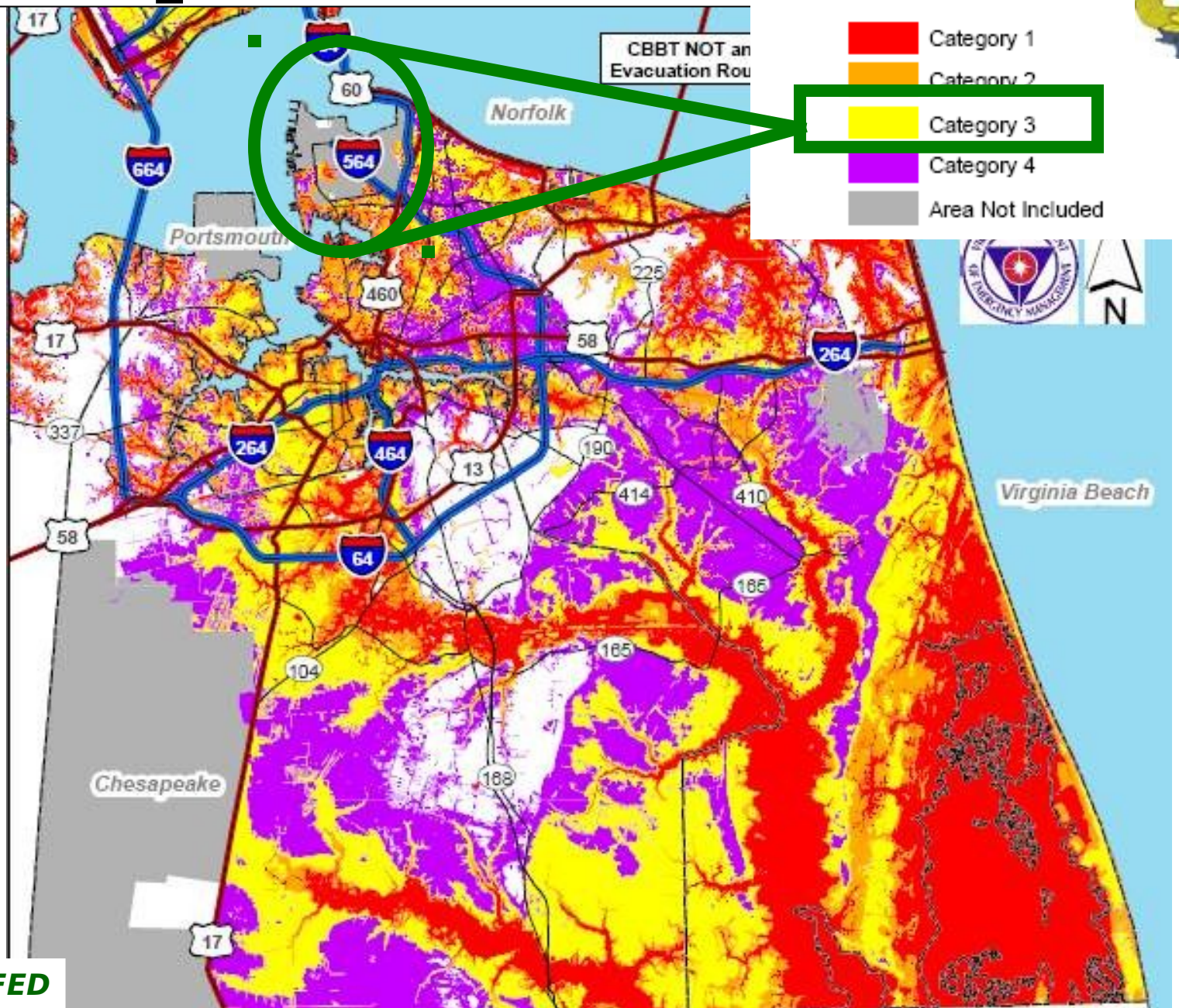
Hampton Roads Storm Su



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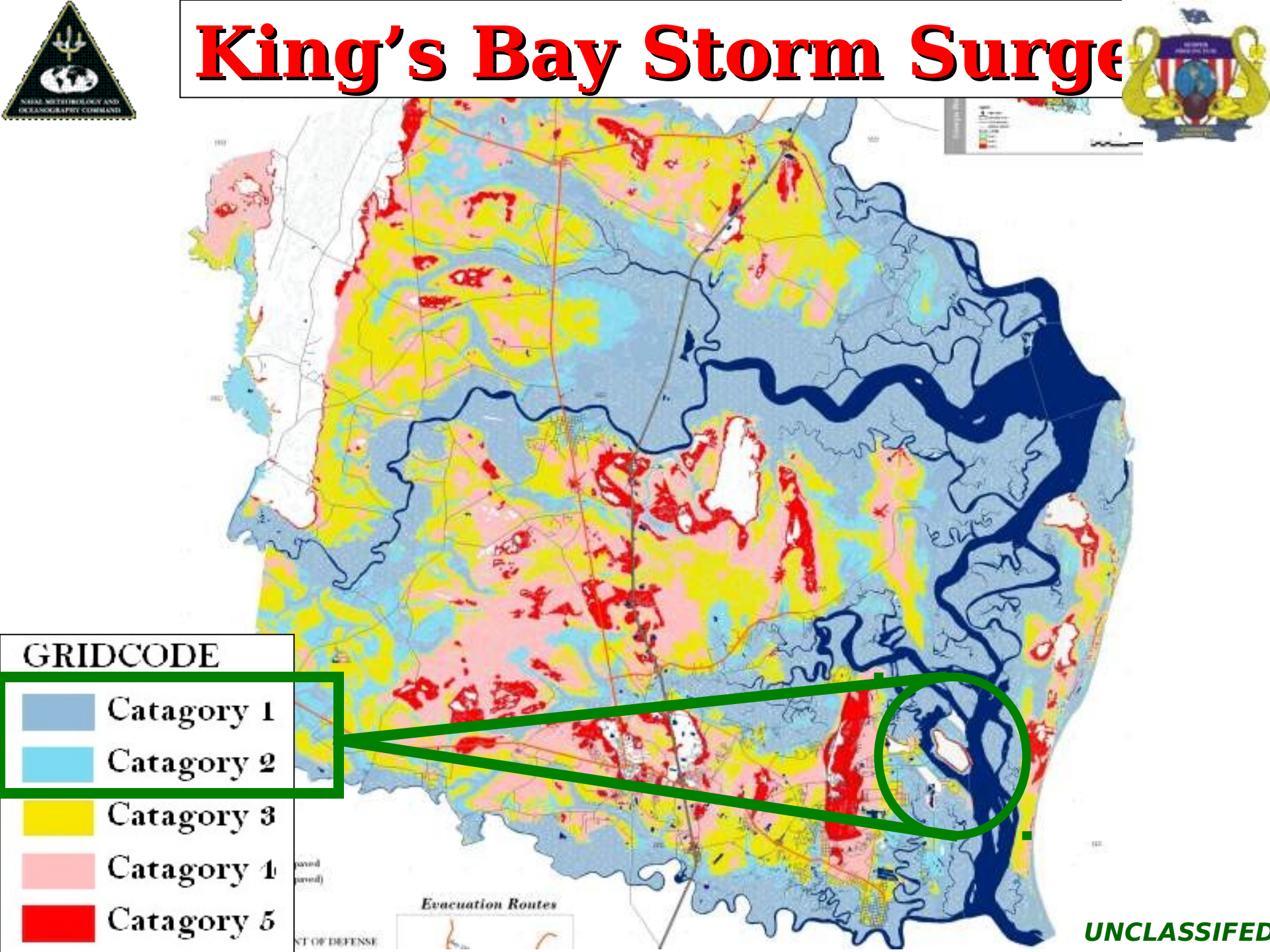
King's Bay Storm Surge



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Family Disaster Kit Recommendations

- Water (1 gal/day/person) for 3-7 days
- Food for 3-7 days (non-perishable, hand can opener)
- Clothing
- First Aid Kit/Medications (Particularly for infants/elderly)
- Toiletries/Moisture Wipes
- Flashlight/Radio/Batteries
- “Corded” Telephone
- Cash with some small bills
- Important documents and insurance papers
- Tools
- Full gas tanks in all vehicles, plan evacuation route inland
- Pet care items (food, meds, evac site)

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2010 Hurricane Seasor POC's

- **Maritime Forecast Hub: (757) 444-7728**
  - Forecasted Track and Intensity Graphics
  - Destructive Wind Forecasts
  (Only if winds >35KTS are expected at Naval Installation)
  http://www.usno.navy.mil/NOOC/nmoc-norfolk

- **National Hurricane Center Website:**
  www.nhc.noaa.gov

- **National Hurricane Center Disaster Preparedness:**
  http://www.nhc.noaa.gov/HAW2/english/disaster_prevention.shtml

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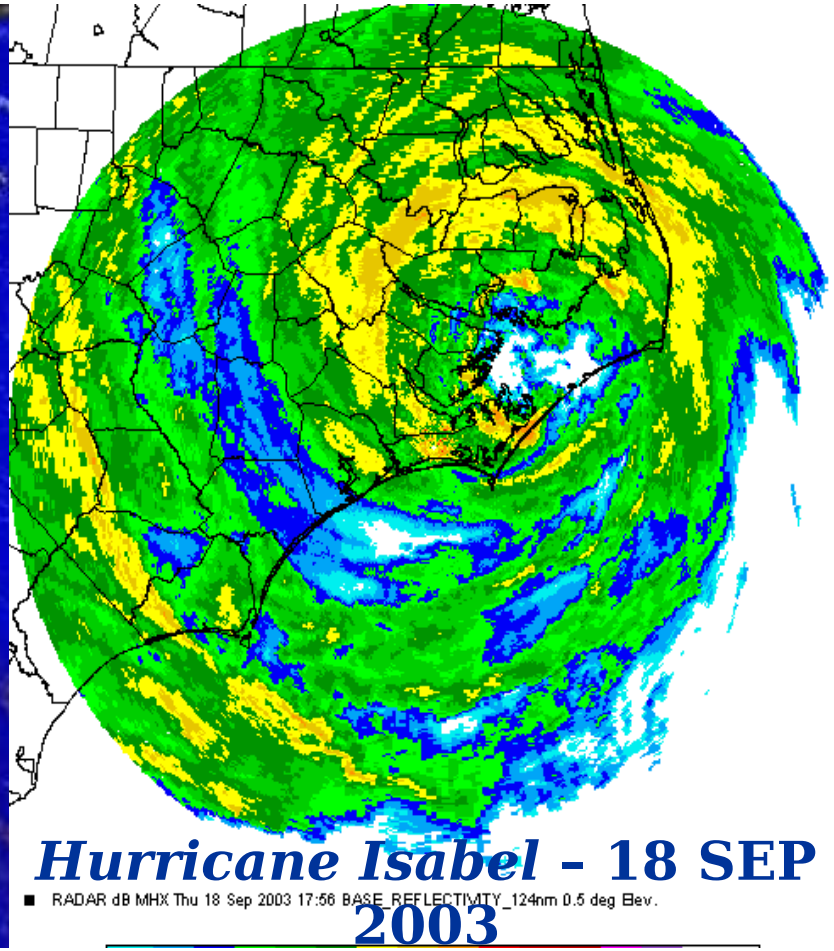
Questions?

- North Pacific: *Typhoon*
- Australia: *Willy Willy*
- Philippines: *Baguio*
- India: *Cyclone*
- Atlantic: *Hurricane*



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